1. (Currently Amended) A method for reducing the servo position error signal non-linearity during self-servo writing, comprising:

measuring a write width for all of a plurality of heads in a disk drive; and

adjusting a write current for each head in ~~a~~ the disk drive toward a predetermined level;

wherein the measuring further comprises determining a mean head width and the adjusting further comprises adjusting the write current for each head by applying a higher write current to heads smaller than the mean head width and a lower write current to heads wider than the mean head width.

2. (Currently Amended) The method of claim 1 further comprising determining a mean track propagation width for the disk drive, the predetermined level establishing the ~~a~~ mean track propagation.

3. (Cancelled)

4. (Original) The method of claim 1 further comprising verifying the optimal performance is achieved using the adjusted write currents.

5. (Original) The method of claim 4 wherein the verifying further comprises repeating the measuring and adjusting until a track propagation for the disk drive meets a predetermined criteria.

6. (Original) The method of claim 5 wherein the predetermined criteria comprises a predetermined minimum threshold.

7. (Original) The method of claim 5 wherein the predetermined criteria comprises a minimum variance in track propagation width.

8. (Currently Amended) A disk drive, comprising:

a plurality of data storage media mounted for simultaneous rotation about an axis;

an actuator for moving each of a plurality of heads relative to ~~an~~ associated data storage media for reading and writing data to the associated data storage media, and

a disk controller for writing a data pattern to respective data storage media utilizing each of the plurality of heads, wherein the disk controller measures the write width for each of the plurality of heads and adjusts a write current for each of the plurality of heads toward a predetermined level;

wherein the disk controller measures the write width for each of the plurality of heads by determining a mean head width and adjusting the write current for each of the plurality of heads by applying a higher write current to heads smaller than the mean head width and a lower write current to heads wider than the mean head width.

9. (Original) The disk drive of claim 8 wherein the disk controller determines a mean track propagation width for the disk drive, the predetermined level establishing a mean track propagation.

10. (Canceled)

11. (Original) The disk drive of claim 8 wherein the disk controller further verifies that optimal performance is achieved using the adjusted write currents.

12. (Original) The disk drive of claim 11 wherein disk controller verifies that optimal performance is achieved by repeating the measuring and adjusting until a track propagation for the disk drive meets a predetermined criteria.

13. (Original) The disk drive of claim 12 wherein the predetermined criteria comprises a predetermined minimum threshold.

14. (Original) The disk drive of claim 12 wherein the predetermined criteria comprises a minimum variance in track propagation width.